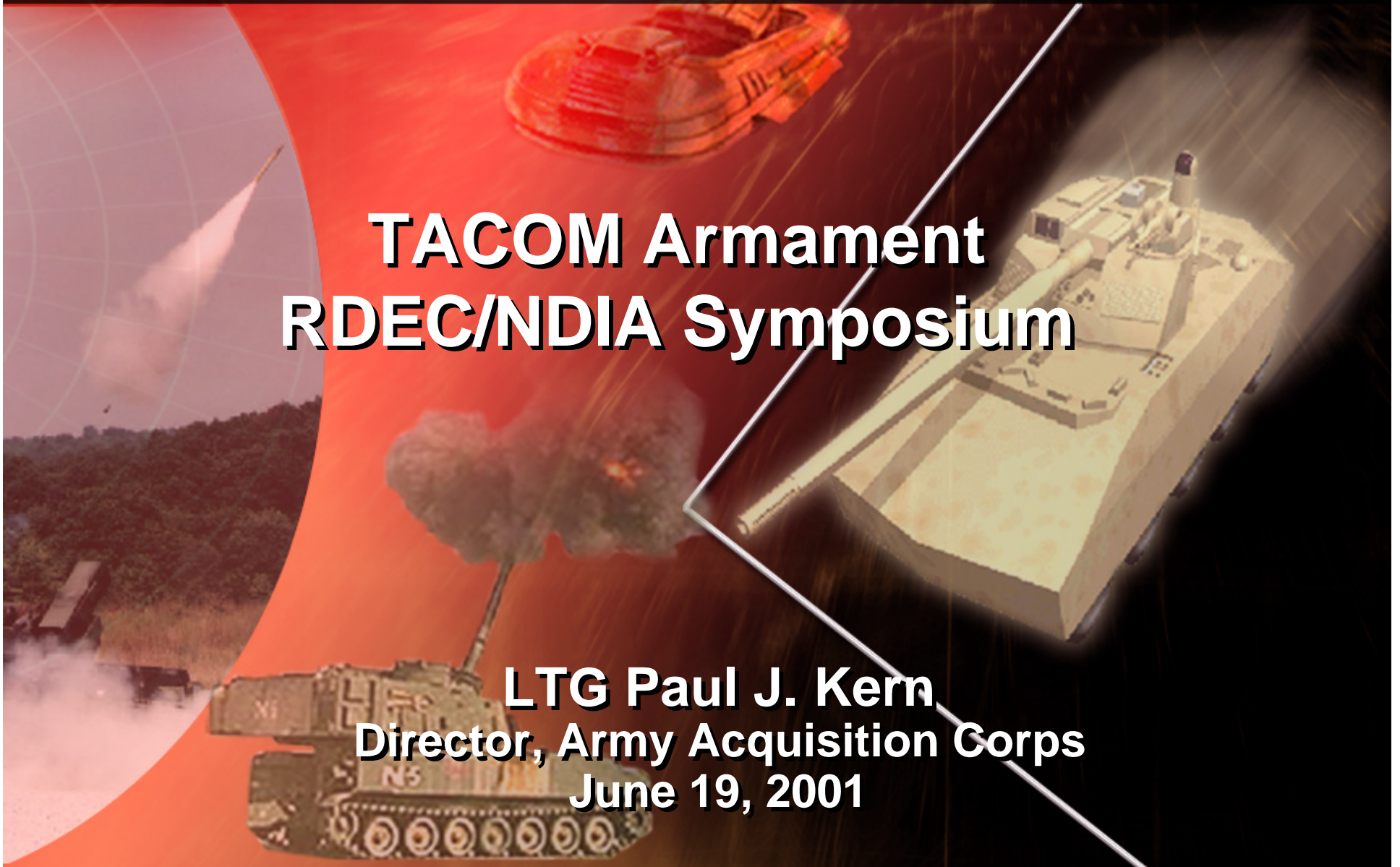


The Army Transformation and Challenges in the Objective Force

TACOM Armament RDEC/NDIA Symposium

**LTG Paul J. Kern
Director, Army Acquisition Corps
June 19, 2001**



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WWII - Entry Into War Caused Rapid Change



General Marshall's Dilemma - What to Build?

Heavy Tank - survivable, poor deployability

Light Tank - Deployable, poor survivability

TF Smith - A Failure to Change

US Weapons Ineffective Against T- 34

Lack of Ammunition

6 HEAT Rounds

No Anti-tank Mines

Poor Communications

Wet Radios

Land Lines Cut by T34 Tracks

150/540 Americans died/wounded/missing



Desert Storm - The Enemy Changed

1991

Right Tank - Wrong War

A Cold War Force Fights in the Desert

Other Reasons We Must Change

Somalia

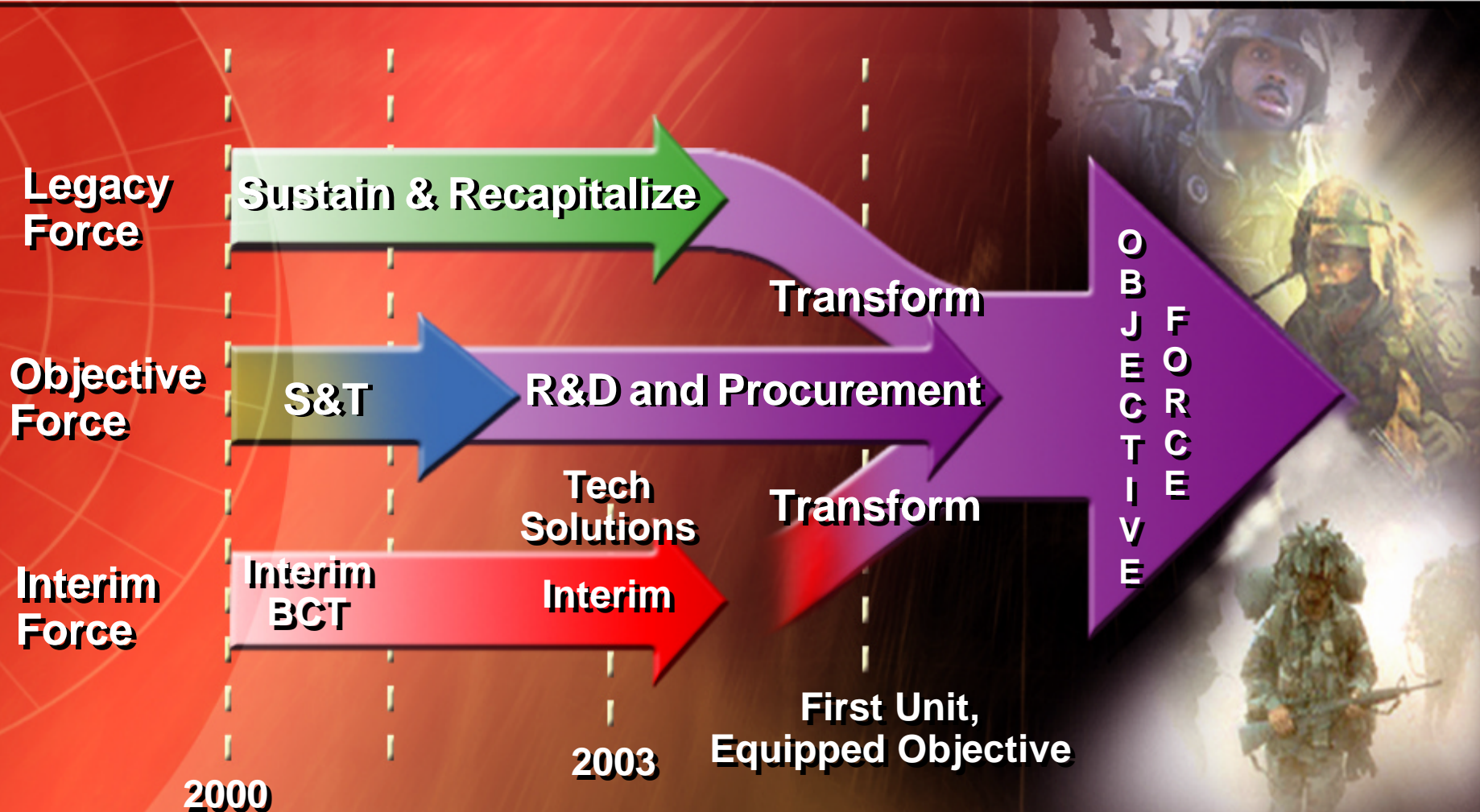
Zaire

Haiti

Kosovo

2001

The Army Transformation



...Responsive, Deployable, Agile, Versatile,
Lethal, Survivable, Sustainable.

Recapitalization Programs

Two Paths:

Rebuild

Selected Upgrade

AIM XXI*

UH-60A

CH-47D

M9 ACE

M88A1

BRADLEY A2

PATRIOT

HEMTT

SEE

FIREFINDER

ELEC SHOPS

FAASV

SUSV

D7 DOZER*

SCRAPER

Zero Time/Zero Mile
Maintenance Standard

Technology Insertion

Same Model-
New Life

Zero Time/Zero Mile
Maintenance Standard

Technology Insertion

Upgrade Warfighting
Capability

New Model-
New Life

M1A2 SEP*

AH-64D

UH-60M

CH-47F

AVLB

HERCULES *

BRADLEY A3*

MLRS A1 *

M113 A3 *

HEMTT ESP

M915A4 *

HMMWV

One Outcome:

Organic Depot End Item
Workload

- Extended service life
- Enhanced Capability
- Reduced Operating and Support (O&S) Cost
- Improved System Reliability, Safety, Maintainability, and Efficiency

* Currently in production

Interim Armored Vehicle (IAV) Performance Characteristics

60 mph maximum speed

**14.5 mm AP All
Around Armor
Protection**

**85 Percent Parts
Commonality Across All
System Configurations**

**Combat Weight
37,796 lbs.**

**Roll-On/Roll-Off
Capable With C130
Aircraft**

5.7 Miles Per Gallon

Transports 9-Man Squad

Low Acoustic Signature

Fire Suppression System

**Command, Control,
Communication and Computers,
Intelligence, Surveillance
and Reconnaissance System Architecture**



**No Requirement For Heavy
Equipment Transport
to The Battlefield**

Run-Flat Tires

**Low Sustainment
Cost**

**Self-Recovery
Winch**

**Superior Ride Quality/
Low Interior Noise
Reduces Crew Fatigue**

**Remote Weapons Station
MK 19/.50 cal Machine gun**

IAV Variants and Configurations



Infantry Carrier Vehicle



Engineer Squad Vehicle



Reconnaissance Vehicle



Medical Evacuation Vehicle



Mortar Carrier Vehicle



Anti-Tank Guided Missile Vehicle



Command Vehicle



NBC Reconnaissance Vehicle



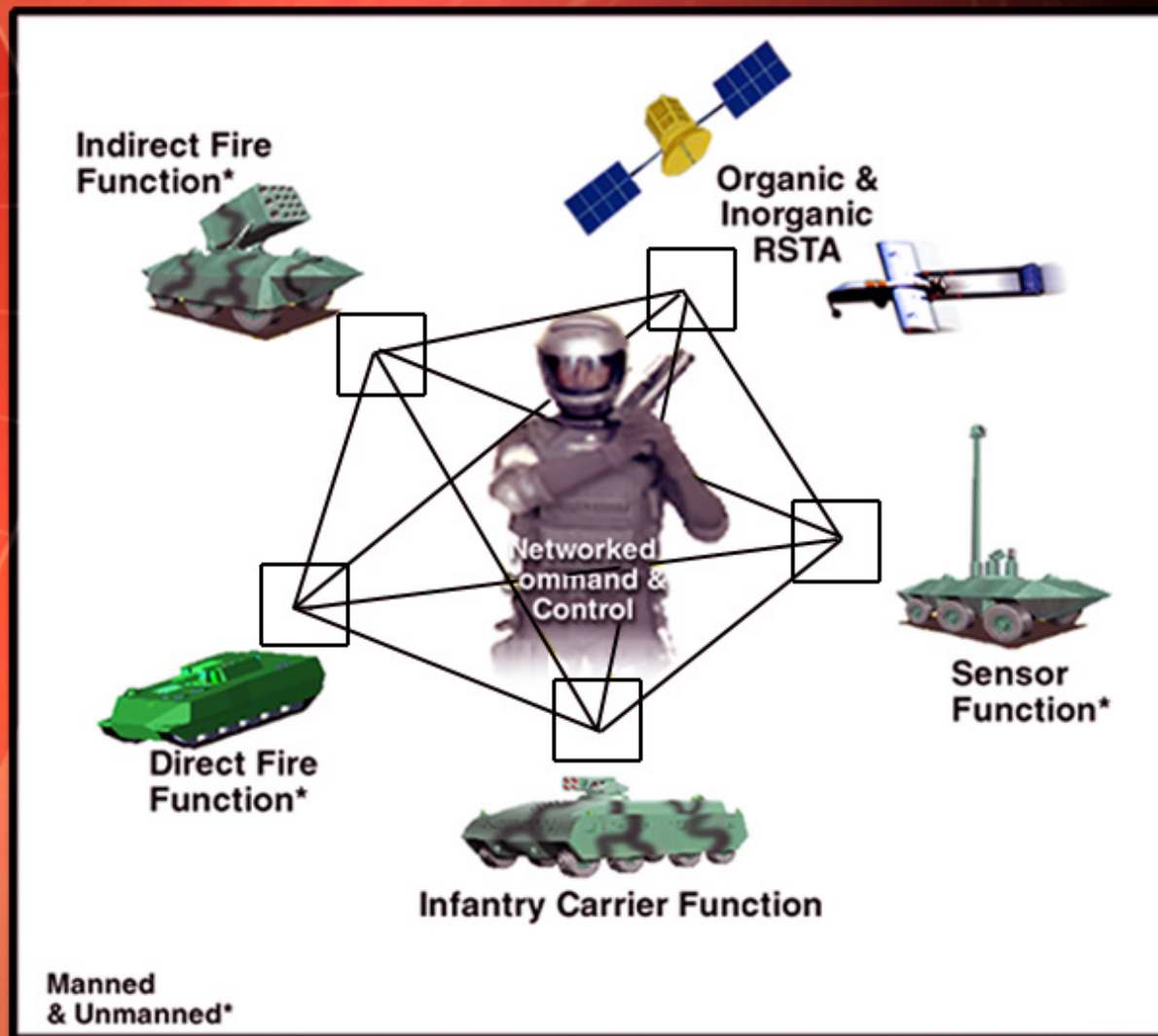
Fire Support Vehicle



Mobile Gun System

Future Combat Systems

Innovative Concepts for Objective Force



How Should We Organize to Accomplish This?

System Optimization



VS.

System of Systems



Small Unit UAV



Robotic Direct Fire



Other
Layered
Sensors



Robotic Sensor



Network
Centric
Force

Distributed Fire
Mechanisms



Robotic NLOS Fire



Manned C2/Infantry Squad

DARPA FCS Design Concept Phase Contractors' Progress

- **Emerging Ideas**

- **5 -19 Ton Vehicles**
- **Organic UAVs**
- **Focus on BLOS/NLOS Engagements**
- **Multi-layered Sensor Suites**
- **Robust Communications Networks**
- **Robotics Play a Key Role**
- **Level of Risk Varies**

Team Gladiator

Team Full Spectrum

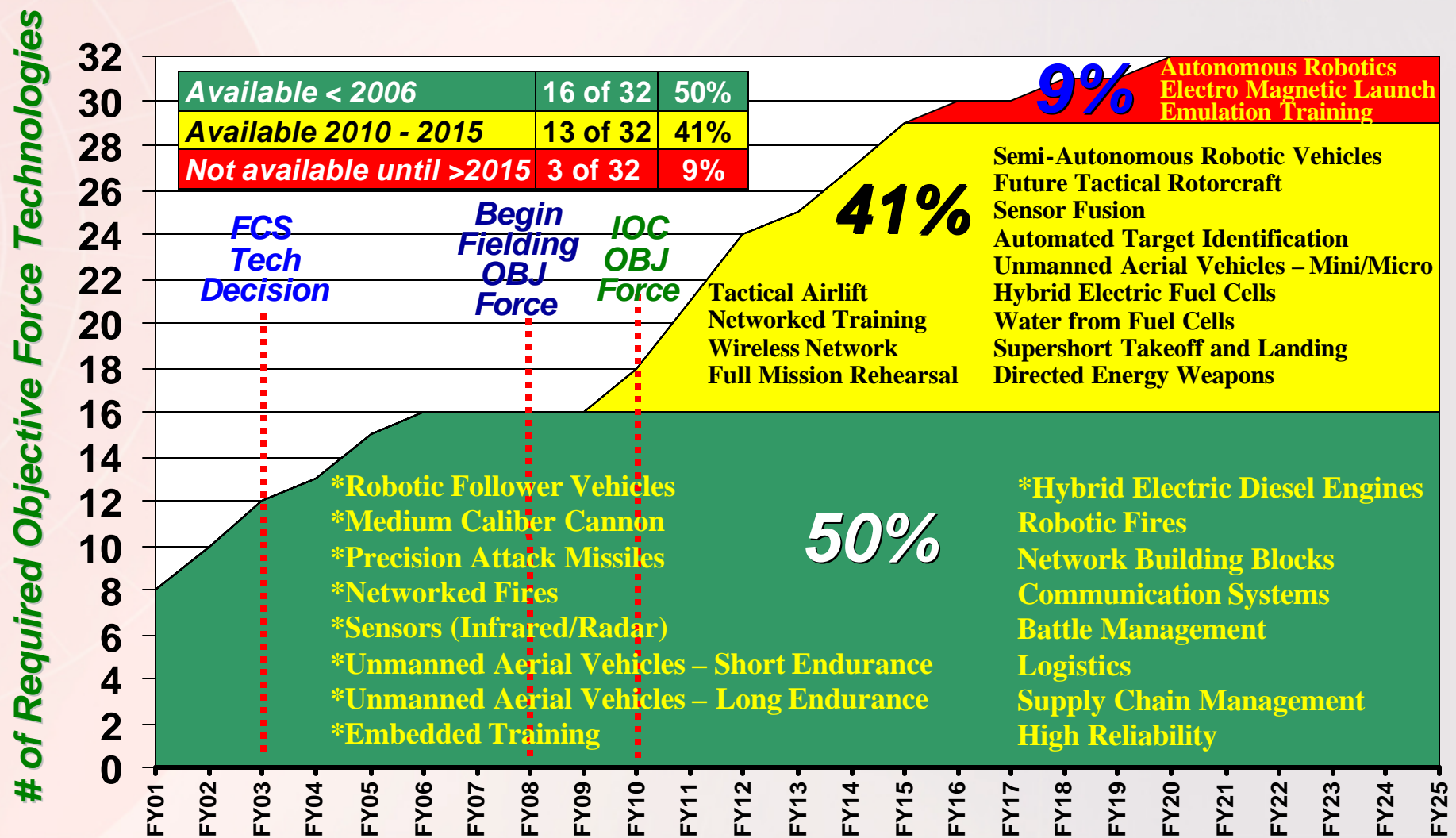
Team FoCus Vision

Team Boeing



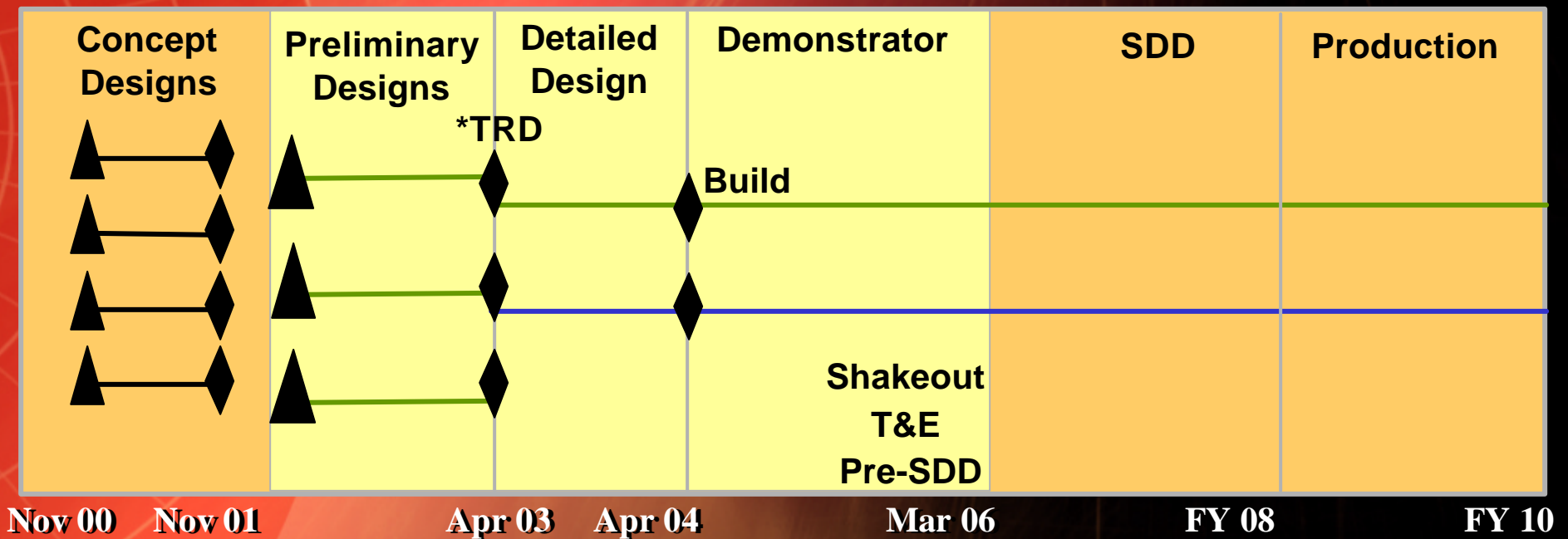
Objective Force

Army Science Board S&T Assessment



* Pacing Technologies

Current FCS Program Schedule



Fire Support - The Path Ahead



Reduced Ammunition Requirements Are Needed To Meet Objective Force Deployment Timelines

***350,000 Tons of Ammunition**

Saudi Arabia

* Source: *Certain Victory - The U.S. Army in the Gulf War*, by BG Robert H. Scales Jr., page 81

Unexploded Ordnance in The Gulf War

- Highly Successful Multiple Launch Rocket System Delivered “Steel Rain”
- 9,660 Rockets Fired in Combat, Each with 644 M77 Antipersonnel and Antimateriel Grenades
- A 5% Dud Rate ---> 311,052 Unexploded Grenades
- Compounded with Additional UXO from ATACMS, DPICM, Cluster Bombs, TLAM-D, etc.



Impact of Unexploded Ordnance on Future Warfare

- Urban or Restricted Terrain
- Dismounted Infantry
- New Lighter Vehicles
- After 6 Years, Still No Self-Destruct Fuze
- This Must Be Solved on OBJ Force

Lethality Platforms



Air Defense Target Acquisition To Target Engagement

A 25 Second Process

STC IS THIS



NOT THIS

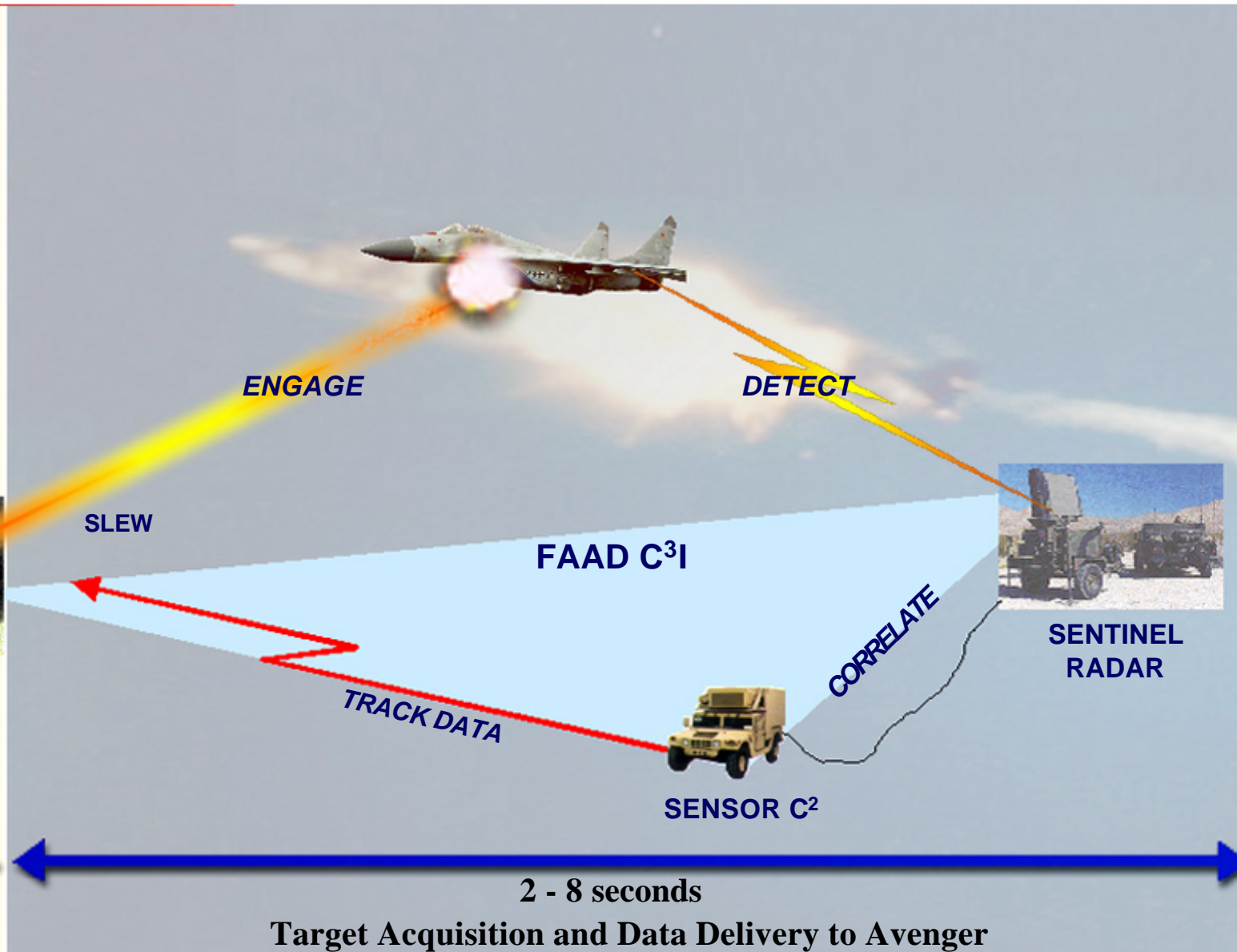


GUNNER'S VIEW



AVENGER

17 seconds
Engagement





**IF AIR DEFENSE CAN FIRE ON TARGET
IN LESS THAN 30 SECONDS, WHY CAN'T
WE DO THE SAME WITH INDIRECT FIRES?**

We Must Simplify Software Management



Legacy Software



Objective Force Software

Needed: One Software Solution for Objective Force Fires

Other New Technologies for the Objective Force

- Shoot on the Move Howitzer
- Smooth Bore Howitzer
- Missile/Gun Combination
- Highly Precise Weapons
- Fuzes with 99+% reliability
- Design for Demil
- Shelf-life Designed in



Innovative Concepts are Needed

- Eliminate Excess Parts
- Reduce Size/Weight
- Design In Reliability/Supportability

Strategies I'm pursuing:

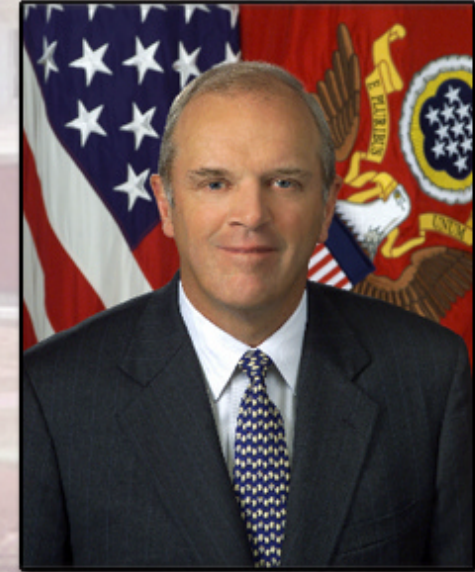
- Expand Collaborative Efforts-Open Communications
- Provide Financial Incentives for Government Labs/Industry
- Establish a DoD/Industry Activity to Exchange Best Ideas

. . . remember to keep soldiers involved



The Secretary of the Army's Four Objectives

- Invest in People
- Assure Readiness
- Transform the Entire Army
- Adopt Sound Business Practices



"Regardless of the challenges, however, I will move forward with transformation, and so should everyone else in the Army . . . if there are disbelievers, they need to get on board."

Secretary of the Army Thomas E. White, June 12, 2001



*Facing the
Future...*

Together